

ART. XXXVI.—*Descriptions (with Illustrations) of Four Fishes new to New Zealand.*

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Plates LIV, LV.

DURING the past two or three years a good deal of systematic work has been done in the Auckland Museum in investigating the fish fauna of New Zealand, this work having been made possible by the advent of the trawling industry in the waters of the Auckland Provincial District. It is now thought desirable that particulars of exceptional interest should be placed on record. It is now possible, with the co-operation of the owners and masters of the boats, to obtain much fresh material; and good results are anticipated from this source, which will not only add to our collections, but also enable us to gain a better knowledge of local marine life generally.

The following are descriptions of four species new to our fish fauna, and are of particular interest, as three of them belong to genera not previously known from New Zealand.

## Family MYRIDAE.

## Genus MURAENICHTHYS Bleeker.

*Muraenichthys breviceps* Günther. (Plate LIV, fig. 1.)

*Muraenichthys breviceps* Günther, *Ann. Mag. Nat. Hist.* (4), vol. 17, p. 401, 1876; McCulloch, *Biol. Results*, "Endearour," pt. 1, p. 21, fig. 7, 1911.

Body vermiform, scaleless, its greatest depth being rather more than 3 in the head. Head, by including its own length, is 10 times in the total, or  $3\frac{1}{2}$  in the trunk, the latter measurement taken from the posterior margin of gill-opening to vent. Eye small, about 3 in the snout, which is  $4\frac{1}{2}$  in the head. Snout short, broad. The muscles on the occiput are swollen, rendering the upper profile concave. Anterior nostrils placed near the end of snout and contained in a small tube, the orifice of which is divided by a thin membrane, forming two single openings. A flap overhanging the lips covers the posterior nostril, which is situated just before and below the eye. Cleft of mouth extends far behind the eye. The lower jaw closes within the upper, and has a row of widely-spaced pores throughout its length. Pores are also found on upper surface of head and behind the eye. Tongue immovable. Teeth granular, obtusely pointed, and partly embedded in the membrane of mouth; they are arranged in a triple series on the palate, and in a single series in the jaws. Lateral line arched above the branchial sac, but from this point it continues in a straight line to the tip of tail. There is a row of numerous minute pores placed below and at short distances apart throughout its length. Dorsal and anal fins very low, many-rayed, and placed within a shallow groove; they extend round the end of tail. Origin of the dorsal much nearer the head than vent, whilst the origin of the anal is 52 mm. from centre of total length. Gill-opening small, with its upper anterior margin dilated.

*Colour in Alcohol.*—Above lateral line uniform light brown, densely crowded with minute darker-brown dots, which are scarcely visible to the naked eye; below the lateral line it is much paler, and shows the muscular structure through the skin.

*Measurements.*—Total length, 620 mm.; vent to tip of snout, 250 mm.; origin of dorsal to end of snout, 96 mm.; middle of eye to tip of snout, 11 mm.; vertical depth of body, 18 mm.

Described from a fine specimen sent me for identification by Mr. W. F. Worley, of Nelson, to whom I am greatly indebted for the privilege of examining it. Mr. Worley informs me that it was captured by Mr. Gossi in Tasman Bay, near Nelson, and, although he had fished in the neighbourhood daily for a number of years, he had never seen such an eel before.

From the above it would appear to be rare in the south of New Zealand; but since receiving Mr. Worley's specimen the Auckland Museum has received three others, taken in the Manukau Harbour by Mr. Hugh Wright, of Epsom, who stated that they were not uncommon during November, and came up readily to a light when held close to the water at night-time. Our largest specimen from the Manukau Harbour is not quite so fine as the Nelson fish, the latter being apparently fully grown, but except in size I found no variation whatever.

In a letter to me, Mr. A. R. McCulloch says, "The adult of this species has never been properly described, and it is apparently very rare in museum collections. Its discovery in New Zealand waters creates a most interesting zoological record."

*Loc.*—Tasman Bay, near Nelson; Manukau Harbour, Auckland.

## Family SERRANIDAE.

### Genus CALLANTHIAS.

*Callanthias splendens* n. sp. (Plate LV, fig. 1.)

D. xi/XI; A. iii/XI; V. i/V; P. XXI; C. XVI  $\frac{3}{8}$ . L. lat. 54-55; L. t. 4/15 = 19.

Body oblong, compressed, covered with moderate finely ctenoid scales the bases of which are furnished with small to minute scales of a similar character arranged in groups of from 3 to 5. Its depth is contained rather less than  $3\frac{1}{2}$  times in the total length. Lateral line continuous, commencing at upper angle of the operculum, then ascending obliquely backwards, reaching its highest point near to the base of the 4th dorsal spine; it then follows an even course close to the base of the dorsal fin and passes into the caudal. The tube is straight, almost covering each scale. Head, excepting the extreme tip of snout, covered with small ctenoid scales; it is not contained quite 5 times in the total length, and barely  $1\frac{1}{2}$  in the greatest height, which is vertical from the 1st anal spine. Operculum with 7 series of scales, and armed on its upper posterior margin with two moderately strong flattened spines placed close together, the lower being the longest. Preoperculum entire, its angle rounded and smooth. Eye moderate, 3 in the head. Interorbital space high, convex, covered with very small ctenoid scales. Maxillary not extending quite as far as the vertical from



Diagram of scales of *Callanthias splendens*.  $\times 3$ .



FIG. 1.—*Muracinichthys breviceps*. From a three-quarter-grown specimen.

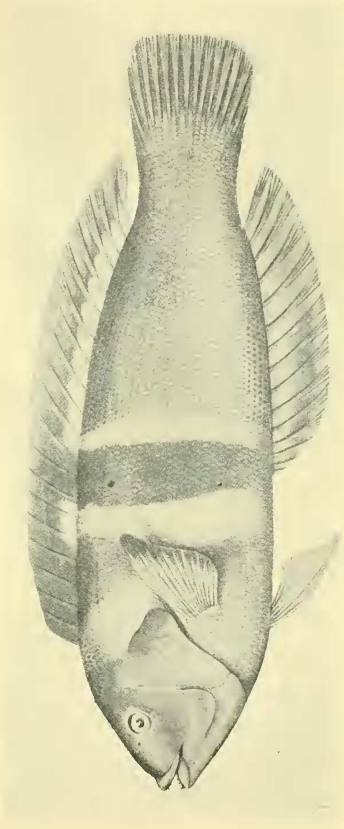


FIG. 2.—*Coris sandeyeri*.

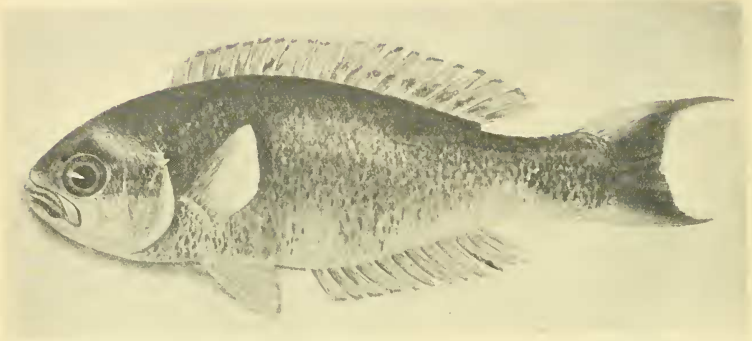


FIG. 1.—*Callanthias splendens* n. sp.



FIG. 2.—*Spheroides nitidus* n. sp.

centre of eye. Its base is completely hidden beneath the preorbital, and its distal end is very narrow and furnished with minute ctenoid scales. Mouth feebly protractile, oblique; the hinder margin of premaxillary fitting close to the anterior margin of preorbital. A very strong narrow membranous fringe depending from the upper angle of premaxillary hides the vomer. Jaws equal when the mouth is closed. A single series of villiform teeth in both jaws extending well into the angles. Those of the upper jaw are fewer in number than those of the lower. A few stronger and slightly hooked canines are found sparsely disposed among the smaller ones, and the two anterior canines of the lower jaw are produced outwards. Snout obtuse; the posterior nostril, situated above the anterior margin of eye, is a single, simple, oblong opening, whilst the anterior one is very minute, placed in a short tube, situated midway between its fellow and the tip of snout; there is a minute pore in front of and behind it. Various pores are scattered about top and sides of head. A line of pores commencing behind the eye completely surrounds that organ. Branchiostegals 6; gills  $3\frac{1}{2}$ ; the membrane united in front. Gill-rakers 29, long and hair-like on the lower half of anterior arch. Pseudobranchii present. Dorsal fin moderate, and placed in a groove; it increases slightly in height backwards, the last four rays being the longest. Anal fin similar to the dorsal, but the soft rays are somewhat longer; it is placed in a groove, which, like that of the dorsal, is not deep enough to enclose the fin when laid back. The membrane of both fins is strong, and has a waved appearance. Pectoral rounded, the upper rays slightly the longest; it goes 6 times in the total length of fish, and  $1\frac{1}{2}$  in the height. Ventrals with a moderate spine, the distal half being much flattened; they reach to the posterior margin of the vent. Caudal with its upper and lower outer rays produced; the upper, which is the largest, is 27 mm. beyond the margin of middle rays. All the rays of the caudal are covered with minute ctenoid scales almost to their outer margins.

*Measurements.*—Total length, 225 mm.; height, 65 mm.; thickness of body, 31 mm.; length of head, 45 mm.; eye, 15 mm.

Trawled at the entrance to the Hauraki Gulf, Auckland, September, 1920.

*Colour.*—The colour given for this specimen was determined by comparison with Ridgway's *Colour Standards and Nomenclature*. Top of head, excepting the extreme tip of snout, silvery light phlox-purple, joined on the shoulders by a broad triangular band of light vinaceous rufous, which reaches downwards, following the margin of operculum, to the base of the 1st pectoral spine. Behind the eye there is a band, lemon chrome-yellow in colour, and about half the diameter of the eye in width, which reaches to the posterior margin of operculum. This is joined below by another band of similar width, but of a dull lavender-violet colour. Lower half of head and opercles silvery-white, the margins of all the scales being greyish, and their centres touched with pale lemon-yellow. Maxillary silvery-white; the scales on its distal margin are dull lavender-violet. Tip of snout and premaxillary pinkish-white. Lower jaw very pale lemon-white. Eye lemon-yellow, streaked with zinc-orange, the lens being blue-black. Body, from top of back downwards to an uneven line drawn from centre of pectoral to the caudal peduncle, a light rosolane-purple hue over bright silver, and below this, reaching to the ventral surface, it is ivory-yellow, the centres of the scales reflecting olympic blue. Above the base of ventrals there is a patch, 30 mm. in width, which joins the body-colour

behind the pectorals where all the scales are shaded with pale vinaceous rufous. A similar patch commences above the 4th anal ray, extending along the lower side of the fish, between the margins of the body-colour and the base of the anal fin, and reaches to the hinder margin of the caudal peduncle. On the latter all the scales are broadly margined with primuline yellow. In front of the ventrals, and reaching up to the base of the pectorals, all the scales are bright lemon-yellow in colour. The colour of the lateral line is somewhat deeper in tone than the body-colour, and a dull magenta-purple blotch is found on it situated below the 6th-7th soft dorsal rays. Spines and rays of the dorsal fin dusky white, the membrane being pale naples-yellow, streaked with greyish-white. The margin of the whole fin is tipped with a narrow band of rosolane-purple, and in the centre of the soft portion there is a medium band of thin coral-red throughout its length. A few black streaks are found between the 7th and 8th spines. Anal fin similar to the dorsal, with the exception of the coral-red band; there is a black streak posteriorly between the 10th and 11th soft rays. Ventrals yellowish-white, the spines and rays somewhat lighter. Pectorals with their anterior rays rosolane-purple, getting much lighter backwards, the lower rays being almost pure white. Caudal with its produced tips and central rays madder-violet, the procurvent rays of both lobes being light lavender-violet.

This beautiful genus appears to be either very little known or very rare, and it is most interesting to have discovered it in New Zealand waters. In the *British Museum Catalogue of Fishes* (vol. 1, 2nd ed., 1895) Boulenger gives an account of two species only—*i.e.*, *Callanthias peloritanus* from Madeira to the Mediterranean, and of *C. allporti* from the coast of Tasmania. A good figure of the latter is given on pl. xv of the same volume, and a comparison between *C. allporti* and my specimen shows several marked specific differences. In *C. splendens* the dorsal fin has an equal number of spines and soft rays, and the soft portion does not much exceed the spinose in height. The greatly produced rays of the caudal are another prominent feature. In *C. allporti* the soft dorsal has its hinder rays much longer in proportion and more elevated backwards, and there is one soft ray less in both the dorsal and anal fin, whilst the outer caudal rays are subequal and very little longer than the rest of the fin.

#### Family LABRIDAE.

#### Genus CORIS Lacepède.

#### *Coris sandeyeri* (Hector). (Plate LIV, fig. 2.)

*Cymolutes sandeyeri* Hector in *Trans. N.Z. Inst.*, vol. 16, p. 323, 1884.

*Coris rex* Ramsay and Ogilby, *Proc. Linn. Soc. N.S.W.*, vol. 10, pt. iv, p. 850, 1886.

D. ix/XII; A. iii/XII; V. i/V; P. XIII; C. XIV. L. lat. 98.

A fine specimen of this handsome fish was caught by one of the assistant keepers at Cuvier Island lighthouse, near Auckland, in August, 1918. It was sent to Mr. T. F. Cheeseman, Curator of the Auckland Museum, for identification, and he handed it to me for examination. I came to the conclusion that it was similar to a fish very briefly described by the late Sir James Hector under the name of *Cymolutes sandeyeri*, reference to which is given above. If this is correct it is evident that Hector erred by placing it in the genus *Cymolutes*, for I found that it possessed strong anterior canines in the angles of the mouth, whereas the genus *Cymolutes* has none. Not being quite sure of its identity, owing to the absence of comparative



material, I sent the specimen to Mr. A. R. McCulloch, the expert zoologist to the Australian Museum, Sydney, who recognized it at once as being the *Coris rex* of Ramsay and Ogilby. He suggested the possibility of Hector's type being the same species. I was fortunately able to obtain the loan of Hector's specimen from the Dominion Museum, and on making a comparison I found the two fishes to be identical, although Hector's specimen is somewhat the smaller. It is quite evident that the genus *Cymolutes* has not yet been found in New Zealand waters, and it is interesting to know that *Coris sandeyeri*, which is apparently very rare in museum collections, is a permanent resident with us. I have since heard that others have been taken at various times in the same locality. A fine description, with plate, by Mr. McCulloch is given in *Rec. Aust. Mus.*, vol. 13, No. 2, p. 67, pl. xiv, fig. 2, 1920, and to him I tender my best thanks for identification of the specimen and other valuable information. I also wish to express my thanks to Dr. J. Allan Thomson, Director of the Dominion Museum, for allowing me to examine Hector's type, and to Mr. W. J. Phillipps for his assistance.

For the convenience of students and for purposes of identification I am giving Mr. McCulloch's plate of *Coris sandeyeri*, with a brief description of my own and a colour-note made directly after the fish was captured.

Body oblong, compressed, covered with small cycloid scales. Its height is contained  $3\frac{3}{4}$  in the total length. Head naked. Snout sharply conical, and the operculum produced into a broad flexible lobe. Mouth slightly oblique, with a double series of strong conical teeth in both jaws. The two anterior teeth in each project outwards as strong canines. A strong canine tooth in each angle of mouth. Gills  $3\frac{1}{2}$ ; gill-rakers 11, on lower half of anterior arch. Lateral line curves upwards towards dorsal fin anteriorly, reaching its highest point beneath the 4th and 5th spines. It continues straight for some distance, but commences to bend downwards towards the centre of the height under the 9th soft dorsal ray. Dorsal fin with its origin above centre of operculum, its margin somewhat rounded. Origin of anal fin vertically beneath the 2nd dorsal ray; it is similar to the dorsal in form. Caudal subtruncate, with its basal third covered with scales.

*Colour*.—In giving a description of the colour I am relying entirely on a chart of the Cuvier Island specimen which was drawn directly after its capture. Never having seen the fish alive myself, I am unable to say whether the particulars given below are accurate, but my informant seems to have taken considerable pains to make them so.

Tip of snout to centre of interocular light green, deepening gradually on the shoulders as far as the 1st dorsal spine to dark green. Preorbital anteriorly dark green; nearer the eye it is red. Cheeks below eye red. Lips flesh-colour. Behind the eye the upper portion of the preoperculum is pink to a level with the bottom of eye, and below that it is light green as far as its rounded angle. Operculum pale violet, the tip of flexible lobe being deep violet. There is a light-blue patch in the angle of the mouth. Lower jaw light blue anteriorly, deepening into violet on the suboperculum. There is a patch on the throat almost bare of scales which is dark blue. The first vertical band is black anteriorly, blending into deep violet posteriorly, but towards the ventral surface it becomes much paler. Second vertical band deep black throughout. The dorsal surface of the fish in front of, between, and behind the second vertical band, and extending as far as the base of the caudal, deep orange-red, lighter in middle of fish, but there